AMENDMENTS TO THE CLAIMS

1. (Original) Apparatus for increasing the output of a laser, comprising:

a pump laser having an output beam defining a single beamline;

an optical parametric oscillator in the form of a ring laser having a nonlinear optical crystal aligned along said single beamline; and,

an optical parametric amplifier positioned to accept the output of said optical parametric oscillator and having a nonlinear optical crystal aligned along said single beamline.

2. (Original) The apparatus of Claim 1, wherein said ring laser has a number of mirrors, each angled at 45° to said single beamline.

3. (Original) The apparatus of Claim 2, wherein said mirrors include an input mirror to one side of the nonlinear optical crystal in said ring laser and an output mirror to the other side of said last-mentioned crystal.

4. (Original) The apparatus of Claim 3, wherein said input and output mirrors are dichroic mirrors.

5. (Original) The apparatus of Claim 4, wherein said input mirror is highly transmissive at the pump laser wavelength, wherein said ring laser develops a signal and wherein said input mirror is highly reflective at the signal wavelength.

6. (Original) The apparatus of Claim 5, wherein said ring laser develops an idler and wherein said output mirror is highly transmissive at the pump and idler wavelengths and reflective at the signal wavelength.

7. (Original) The apparatus of Claim 1, wherein said nonlinear optical crystals include KTP crystals.

8. (Currently amended) The apparatus of Claim 1, wherein ~~said laser is an eye-safe laser~~ the output from said optical parametric amplifier is in the eye-safe region of the electromagnetic spectrum.

9. (Currently amended) The apparatus of Claim ~~1~~ 8, wherein said eye-safe ~~laser operates~~ region is in the 1.5-micron band.

10. (Currently amended) The apparatus of Claim ~~9~~ 8, wherein said eye-safe ~~laser operates~~ region is in the 3-micron band.

11. (Original) A method for eliminating feedback in a laser system that includes a pump laser and an optical parametric oscillator, comprising the steps of :

providing that the optical parametric oscillator be in the form of a ring laser having a segment that includes a nonlinear optical crystal having an optical axis; and,

injecting a beam of monochromatic light from the pump laser along a path aligned with the optical axis of the nonlinear optical crystal.

12. (Original) The method of Claim 11, wherein the ring laser includes mirrors which are at an angle to the optical axis of the nonlinear optical crystal, whereby light traveling around the ring is reflected in a direction away from the pump laser, thus to eliminate feedback to the pump laser.

13. (Original) The method of Claim 12, wherein the angle is 45°.

14. (Original) The method of Claim 12, wherein the ring laser generates a signal and wherein the mirrors include an input mirror to one side of the nonlinear optical crystal and an output mirror to the other side of the nonlinear output crystal, and wherein the input mirror is reflective at the signal wavelength.

15. (Original) The method of Claim 14, wherein the input mirror is transmissive at the pump laser wavelength and wherein the ring laser generates an idler, the output mirror being transmissive at the pump and idler wavelengths and reflective at the signal wavelength.

16. (Original) A method for minimizing the weight and size of a LIDAR unit while maximizing power output comprising:

providing a pump laser beam that defines a single beamline; and,

locating a ring laser having a segment including a nonlinear optical crystal aligned with the single beamline to be pumped by the pump laser beam, such that no isolators are necessary to prevent feedback from the ring laser to the pump laser.

17. (Original) The method of Claim 16, wherein the ring laser includes mirrors angled from the single beamline so as to prevent feedback from entering the pump laser.

18. (Original) The method of Claim 17, wherein the angle is 45°.